

November
1985

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NEWS FLASH!!!!!!!!!!!!!!

Stoney McMurray reports that Sinclair Research told him today(Oct 25) that the new price of the QL is \$299. They will also loan one to the group for demo purposes. Stoney hopes to be able to keep it long enough to show it off at the December meeting.

SUBSCRIPTION NOTICE

Please check your mailing label. Above your last name you will see the month and year in which you will receive your last issue of LISTING (LLIST) Newsletter. If this number does not agree with your records please let us know. This is a good time too, to request information on specific subjects for next years newsletters or just let us know what your special needs are.

LIST GROUP
P.O. BOX 438
CENTERPORT, N.Y. 11721-0438

MEETING NOTES - OCTOBER 6, 1985

The October meeting took place at John Gaddis' house in Sayville. There were 25 members in attendance. The first order of business was the confirmation of the November meeting date: Sunday November 3rd at 2:PM in the Huntington Public Library (RT 25A in Huntington). Paul D. has prepared all the exchange newsletters and Jeff S. has designed a "Modular" PRO/FILE system for multiple data entry of the data base. Jeff has also set up a preliminary file spec. Miles Cohen and Martin Helfgott will begin entering the data.

The treasury was reported sound and membership (paid) now stands at 115.

Problems resulting from Gloria's visit to Long Island caused Nazir to again postpone the hardware group meeting. He will need more time to get all the training aids together.

A question was raised about having a member volunteer to be the "voice of LIST". If you'd like to talk to other users and serve as a point of phone contact for the group, please volunteer at the next meeting. Also NOMINATIONS for officers should be submitted in November. Again, volunteers are welcome. Yes! You may nominate yourself.

Discussion Topics Included:

- 1) Stoney McM. stated that Jack Dohang has written a relocatable version of the AERCO print driver software. It should be in the public domain, but he's not sure of Aerco's position and will check. Stoney mentioned that Port 127 seems to be used by Aerco. They print IN 127, if you get 229, your printer is ready to be sent a byte. Then just OUT 127, CODE # for ASCII codes to print.
- 2) Marty J. asked if anyone, anywhere, has been able to hear the BASICODE broadcasts.
- 3) Nazir announced that he has developed a "split-personality" module for the Portuguese disk drive. He has refined the logic to switch the Portuguese personality module from TS 2068 to Spectrum, at will, and will have a PLA programmed. His circuit board makes 5 connections inside the original module and uses one of the existing ports in a unique way, to prevent contention with future peripherals. Nazir may "go commercial" with this board if enough members are interested. Installation is complicated, and will probably not be possible in the field.
- 4) Rumors are that 21st Century is working on a less expensive version of the Aerco disk interface. Also that Bob Dyl has obtained the "hackers delight", a 9 slot motherboard for the Spectrum which includes a disk drive and possibly even CP/M. Some have called this a "mini-main frame".
- 5) A call for I/O port standards was made. Does anyone have even a list of who is using what now? A discussion on 256 bank switching occurred. Nazir has talked to Wes Buzozowski about this. At first glance, he apparently feels it might take 25 or 30 chips, a bunch of assorted hardware, and move software to emulate (or duplicate) Timex's ephemeral BEU (Bank Enable Unit).
- 6) Zebra's "twistor" boards have been produced in the final development stage. Stewart N. gave some to Nazir for testing. These are the boards with possible RGB and Spectrum ROM options and even have a small "kluge" area for experimentors.
- 7) Some members (not all) apparently got newsletters from the end of the run. These were not dark enough on the last few pages. If you are one of these members, and you really can't read, and need certain pages, please let us know. While we have no budget to cover reproduction or mailing costs, we will try to get the information to you somehow.
- 8) Stoney McM. lost the list of names for the rest of his group. We will make a special shipment to them. If you did not get your look at tape #3.5 yet please let us know. At least two other tapes (a total of some 18-20 members) have not replied as yet. As it stands now, by the time we sort out who still needs tape #3.5, #4 will already be out to the other members. Please keep a record of who you get the tape from, when you got it, and to whom and when you dispatched it again.
- 9) Jeff is working on using a 16K RAM pack with Nazir's Bank switching (see September LISTING on TS Horizons) as a printer server. The idea is to let the printer work in the "background" while you keep computing.
- 10) John Bell demoed his special voice synthesizer/mouse/Centronics interface in its voice-synthesize mode. John is using the General Instruments chips (SPO 256 series), as was used in the old Parrot. He has also bought one of the GI "text-to-Speed" ROMs available from Radio Shack and will soon try to interface that with his unit. His plans, if developed, should provide useful hardware guidance for Parrot owners. John also showed us a Gavilen "centric" printer which, as yet, doesn't respond.
- 11) Bob Malloy showed us a program to continuously read and catalog tape headers. This is a sophisticated program which allows you, at last, to maintain a complete record, including header data, of everything on a tape. It will be included in tape #5.
- 12) John G. demoed his program "Personal Secretary" a program which uses Jeff Streets' OS64 to handle your business affairs. It includes, in addition to 64 column screens, a number of Sidekick and Window Functions. OS64 is compatible with the Timex disk drive, by the way.
- 13) Peter Ross Demoed his program "Chromotech". This could be a real boon to "Tech Draw" owners, as it allows the user to color in those black and white "Tech Draw" pictures. There are, of course, limitations, but if you're interested, talk to Peter in November.
- 14) Bob Gilder brought in his Amdec dual 3" drive package and one of those \$39.95 REMEX DS/DD drives. Both look well made and Bob is quite happy with them.
- 15) John Gaddis' 2068 may have given its life in the course of science. Somehow, sometime around the time Izzy G's non-functioning Aerco drive was being tested on John's machine, it went "blooie". Stewart N. volunteered the services of Zebra System to try and repair the machine.
- 16) Stewart N. reported on his visit to the PC World show in England. He saw QL's selling for as little as \$189 and routinely at \$199. In the 68000 category, the OL's is definitely the machine to beat.

A Test Drive of the Zebra Floppy Disk Drive System.
By John W. Gaddis

The Zebra Floppy Disk Drive System is here and I am very fortunate to be one of the first people in this country to get one. And let me tell you, it was worth the wait.

I have always felt that the T/S 2068 was one of the better personal computers in its class. (Under \$500). But as I am sure most people who own one must have felt at least once (though I'll bet much more), using a cassette recorder is a poor way of saving and gaining access to your programs. Well, thanks to the people of Portugal, you can bring your computer back to the "high tech age".

Once you receive your set of Disk Drives, you notice the way the system makes your computer look better. It is the same silver color and is styled in a way that will grab peoples attention. This is a very well built system, not some "black box" design that most of us are used to. The manual is very informative and easy to understand. Again, not what you would usually expect in a product made for the 2068.

Once you have the Drive System connected to the computer (the manual explains the set-up very well), the fun really begins. The demo disk is inserted into the drive at start-up. When you turn the computer on, you will see the TOS 1985 copyright line appear. The Disk Drive System has its own Z80A microprocessor as well as 16K of ram. It is a complete computer within itself! The big surprise is that if you use the PRINT FREE command you will notice that no memory is used by the drives or its operating system.

In the very beginning, you will notice all you have to do to SAVE or LOAD programs to disk is to use a * after the keyword. Sound easy to remember? It is! As a matter of fact, most of the commands you will be using will be the ones on the top line that the 2068 manual said were there for future peripherals. The future is now!

The system has 2 RS 232C serial ports. With the help of the pin location chart in the back of the manual, these ports can be configured to drive almost any peripheral that can be coupled to a serial port. With the utility programs that come on the demo disk, you can use these ports of a modem or a printer. What with the many computer gennuises out there, you will probably be able to use anything in the near future.

But the real power of these drives is its operating system and that it uses a tree directory structure. What this means is that you can set up multiple directories on one disk. By using this feature, you can set your directories (ie; Wordprocessing, Database) and then have the files that belong to these directories saved to them. In that way when you catalog a specific directory, only the files that pertain to it will be shown. This is a big help if you put many files on a disk and wish to have a way to show their relationship to a particular subject.

Another aspect of the operating system is the ability to have

random access or sequential files. The flexibility that this gives the user is of great significance. One use is that by using the disk drives for storage of data, you are not limited to the computers memory. By using the drives as "Disk Ram", that is to store and retrieve on disk, you can now have as many as 65,535 files related to one program. These files can have as many as 256 characters. And with random access, they can be recalled instantly.

In summation, the Zebra Floppy Disk Drive System is by far the best peripheral you can buy for your computer. With such a small shortcoming as a power supply that runs a bit hot, I have yet to find a problem with this system. In my mind, I can honestly say that I have not used a drive system that was easier to use. My hat's off to Zebra Systems Timex of Portugal for bringing this system to the United States. Should you have any questions about converting software, running RS 232 peripherals, or anything really, see my column in Time Designs or write me at:

JOHN GADDIS
21 REGINA DR.
BAYVILLE N.Y. 11782

London Bridge

```
5 REM TRY THIS
10 FOR x=1 TO 24
20 READ y,z
30 BEEP y,z
40 NEXT x
50 DATA .25,0,.125,2,.25,0,.25
  -2,.25,-3,.25,-2,.5,0,.25,-3,.2
  5,-2,.5,0
60 DATA .25,-3,.25,-2,.5,0,.25
  0,.125,2,.25,0,.25,-2,.25,-3,.2
  5,-2,.5,0,.5,-5,.5,0,.25,-3,.5,-
  7
```

Try this program on your 2068
just for the fun of it.

*** This program also works in
SPECTRUM mode if you have an
emulator.

ZX81 emulator?

Dear Sir,
At Christmas I bought tapes for my grandchildren's ZX81 computer, not knowing that their father had exchanged it for a Spectrum.

When buying a datacorder recently, I was told that there is now a tape available which, when entered into the Spectrum, will allow it to play the ZX81 programs. Try as I might, nobody else seems to know of this tape.

I have now been told that there was an issue of ZX Computing which discussed how this could be done. Please can you help?

Yours sincerely,
Mrs D. Davies
Swansea, W Glamorgan

The company that produced the tape you are looking for was called East London Robotics, but I'm afraid the tape only worked on early issue Spectrums, and is no longer on sale - Ed.

ZX COMPUTING OCTOBER/NOVEMBER 1985

KEITH SKAPINSKI

LIST GROUP

P.O. BOX 438
CENTERPORT, N.Y. 11721-0438

You know... This is probably possible in software on the TS2068. Has anyone tried to do this? The extra memory is what should make it possible to support most software which makes "legal" ROM calls (ie. not into the middle of a routine).

TIME--<X>--CHANGE
13910 Halldale Ave.
Gardena, Ca. 90249
(213) 329-3922

Aug. 20, 1985

Welcome new user!

I hope you find this "USER GUIDE" helpful and informative. It is a collection of all the 'HELP' files contained on the BBS already, however the time accessing them can be a costly affair if you are calling Long Distance.

The TIME--<X>--CHANGE is a "new" system and has been "on-line" since July 2, 1985.

I have enclosed some added information documentation and "pass-outs" concerning various ways of "customizing" MTERM-II to work with various programs and hardware systems for your enjoyment.

Most have been "tested" and are in regular use at the moment and others have just "appeared" and have yet to be tried. (some may still have "bugs" to be worked-out).

Other callers that have used this guide have called back to ask for "permission" to make copies of the user guide.

The answer is an absolute YES!

The USER GUIDE as is ALL software and text found on the BBS is in the Public Domain.

Enjoy the system!

Dave Clifford, sysop
The TIME--<X>--CHANGE RCP/M
(213) 329-3922 (300/1200)

Just in from Timelinez.....

Modifications for running MTERM on the SPECTRUM ROM and not "crash" when exiting to BASIC. To make it work.....

- 1) CLEAR 53950
- 2) Load MTERM and RAND USR 54016
- 3) Poke the following: POKE 54554,207 : POKE 54555,255
- 4) Save this customized version: SAVE "MTERM"CODE 54016,7721

When you now exit to BASIC, you will still see the menu but pressing the ENTER key will get your listing.

A text file originally from COMPUSERVE and available on the
TIME--<X>--CHANGE

*** Modifying your Tasword Two for MTERM use ***

Load your Tasword Two program (with the Bytes, as usual), go to the Menu, and use "b" to exit to BASIC.

1. Machine Code Routine. Starting at Line 9000, enter the following BASIC loader for the machine code:

```
9000 RESTORE : LET ADR=54848
9010 FOR I=ADR TO ADR+62
9020 READ BYTE: POKE I,BYTE
9030 NEXT I
9100 DATA 33,118,92,78,33,119
9101 DATA 92,70,3,33,86
9102 DATA 104,9,34,75,92
9103 DATA 33,87,104,9,34
9104 DATA 89,92,33,102,104
9105 DATA 9,34,99,92,197
9106 DATA 42,8,243,17,86
9107 DATA 104,237,176,33,85
9108 DATA 104,193,22,64,35
9109 DATA 21,32,4,54,13
9110 DATA 22,64,11,120,177
9111 DATA 40,2,24,241,54
9112 DATA 64,201
```

Once you have this typed in and you're sure it's right, enter GO TO 9000. Now you can just DELETE 9000,9112 to get rid of the loader program. Your Bytes are in place.

2. Now you want to modify the BASIC section of TW2. There are three necessary commands you must include:

```
---RANDOMIZE a
---CLEAR 54015
---RANDOMIZE USR 54848
```

I just put these in a convenient place in the program, along with some other lines:

```
5000 REM ** MTERM Formatting **
5010 RANDOMIZE a: CLEAR 54015
5020 You can put some PRINT statements in here,
5030 with some explanatory text, etc.
5040 PRINT "Load your MTERM code now, with""TAB 2;"LOAD
""CODE: PRINT USR 54016"
5100 RANDOMIZE USR 54848
5200 STOP
```

Note: the final STOP command is important.

Now, whenever you want to format your text file for the MTERM memory buffer, you can just exit to BASIC and enter GO TO 5000.

3. To make things easier, I have expanded my Menu to include the MTERM formatting option. This is what I did:

```
--Line 25: change VAL "4" to VAL "3"
--Line 60 PRINT : PRINT "format text for MTERM buffer f"
--Line 70: change PRINT AT etc. to PRINT #0;" etc....
```

LIST

Group

--Lines 110 to 170: reduce each of the "LET i=VAL" numbers by one, for example, IF b=VAL"115" THEN LET i=VAL"5"
 --Insert Line 175: IF b=VAL "102" THEN LET i= VAL "19"
 --Insert Line 670: IF b=VAL "102" THEN GO TO VAL "5000"
 Since you have moved the Menu around a little, some of the other PRINT AT statements around the program won't quite line up.
 --Line 800: just use RETURN (get rid of the junk).
 --Line 900: PRINT AT VAL "7", VAL "0";"Rewind and play the tape to verify""a\$; RETURN
 There may be some others, too; you'll find them. In my program I have used a lot of PAPER, INVERSE, etc. That part is up to you.

4. Once you have all your BASIC modifications in place, enter RUN. Go to the Menu and use "t" to save your new program and bytes to tape.

5. Instructions for Use. You can use your modified TW2 program (I call it TasTerm) just like ordinary TW2, for editing, saving, and printing text. There are just a few things to remember:

--If you intend to upload your text file via MTERM, you must leave the column 64 blank. The machine code inserts an ENTER character at this position, so whatever you put there will be lost. When you begin, just hit Cursor Down once, Cursor Left twice, and use Ext. Mode "D" to set the margin. Use Sym. Shift "AT" to get back to the beginning, and you're set.

--Don't load anything into the program that will overwrite the first Help Page. As you can see, the m/c resides on that (formerly) blank line and you don't want to lose it.

--Once you use the formatting option, your BASIC program will be lost, so you can't go back to TW2. Just enter

LOAD ""CODE : PRINT USR 54016

and load your MTERM program. It will start automatically, and your text will be in the buffer.

--When entering text, I recommend leaving W/W turned ON, and R. Justify turned OFF. You don't want to insert a lot of odd spaces that won't make any sense to whomever reads your uploaded text.

--When uploading the text, it will scroll out in 63-character lines, even if the whole line is blank. That's just the way TW2 stores text. You will see a "@" signal at the end of your file. (You'll probably want to delete the "@" signal after it comes out.)

I think that's all there is to it. If you have any questions or suggestions for improvements, I would be very glad to receive them.

David Prantis

NOVEMBER MEETING!

Huntington Public Library

RT 25A, Main St., Huntington, NY

Nov. 3, 1985 @ 2 P.M.

Instructions on using MSCRIPT files with MTERM

1) Save your MSCRIPT files to tape as normal. (You may find that for some systems you may have to enter a <CR> at regular intervals depending on the host system. By setting the line length (window) to one character less than your desired final form, you can go to the beginning of each line, press <ENTER> and easily add the required <CR>)

2) Remove your MSCRIPT tape, and then on a blank tape, start recording, and type: SAVE "text"CODE 26710,20000 and then press <ENTER>. You may remove this tape as soon as the header has been recorded. Remove this tape.

3) Put your MSCRIPT tape back into the recorder and type: LOAD "" <ENTER>. When the header has passed (you will not see and program: or bytes: information) stop the tape immediately. Turn the right hub clockwise one half turn and then remove.

4) Play the dummy header tape and remove as soon as the header is read, and then put the MSCRIPT tape in and PLAY it. This should now be read in, and will stop with an error message (that is OK - it does not mean that there is a problem)

3A) LOAD MTERM, but do not type PRINT USR 54016.

5) POKE 23628,200

6) Type: PRINT USR 54016. You now have your file in the buffer

TS2000 I/O PORT MAP

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	-
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
A	-
B	-
C	-
D	-
E	-
F	-

Notes:

1. Keyboard/Cassette (Read), Border/Beep/Cassette (Write)
2. Dock Horizontal Select (Read/Write)
3. Enhancement Port (Read/Write)
4. Sound Chip Address (Write)
5. Sound Chip Data (Read/Write)
6. TS 2040 Printer
7. Bank Switching
8. Micro-drive
9. Modem
- A. Centronics Interface (Read/Write)

. denotes port address available

TS1500 I/O PORT MAP

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	-
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
A	-
B	-
C	-
D	-
E	-
F	-

Notes:

1. Keyboard/Cassette (Read)
2. NMI Disable (Read)
3. TS 2040 Printer
4. Modem
5. Centronics Interface

. denotes port address available

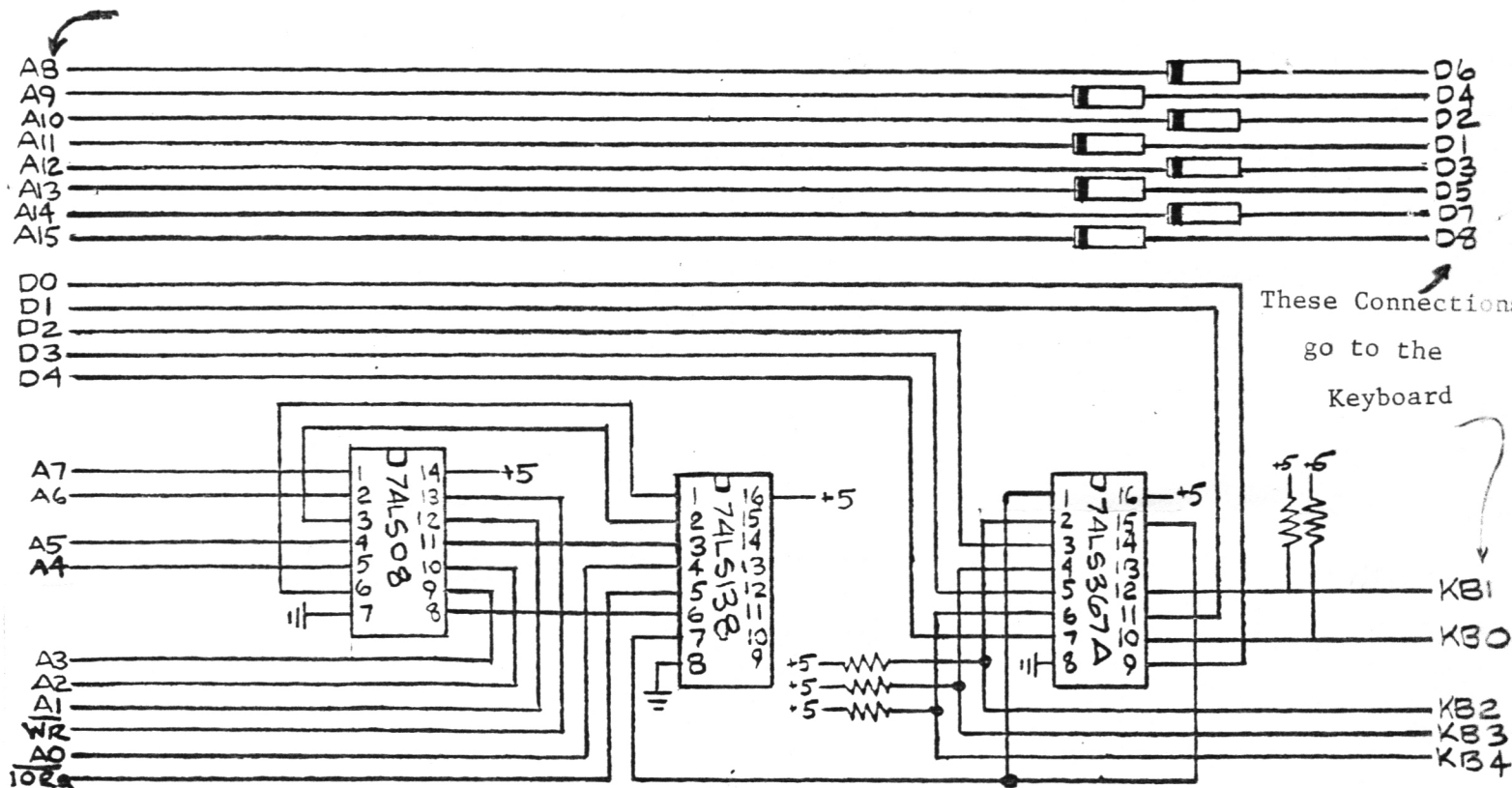
LIST

A Circuit diagram for a "Keyboard Interface Circuit" is printed below. The construction method is your choice. (A PC Board for the cartridge slot is a nice idea) I have not included details on re-wiring a keyboard (see March 85 Listing Pg. 18), but used the connection names used in the March issue. All the resistors are 10K and all of the diodes are 1n914. I did not show decoupling capacitors in the diagram. The circuit I built works fine without them, but use them just to be sure.


LIST Group

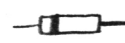
Connections on this side go to the computer

From: John Bell



NOTE: In Case you Don't Know:

 This is the Symbol for a resistor. 10K means 10000 OHMS. Use 1/4 watt (small-size) resistors.

 This is a Symbol for a diode. Make sure the black stripe on the diode is oriented correctly when you build the circuit.

LIST

2068
BIG KEYBOARD

CENTRONIC PRINTER PORT - AERCO STYLE

From: John Bell

Here is a circuit diagram for a centronics printer-interface. Use the construction method you prefer. If this is your first project. A copy of "Getting Started in Electronics" (By F. Mims avail from Radio Shack) would be helpful. You can get the parts from the following companies:

J.D.R. Microdevices
1224 S. Bascom Avenue
San Jose, Ca. 95128
(800) 538-5000 (800)662-6279

or

Jameco Electronics
1355 Shoreway Road
Belmont, Ca 94002
(415) 592-8097

If you have the Aerco print driver software version 2.1, the following Pokes will "convert" it for use with this interface:

POKE 64729,128
POKE 64757,130
POKE 64770,128
POKE 64734,128

You also have to add the following four "OUT" commands

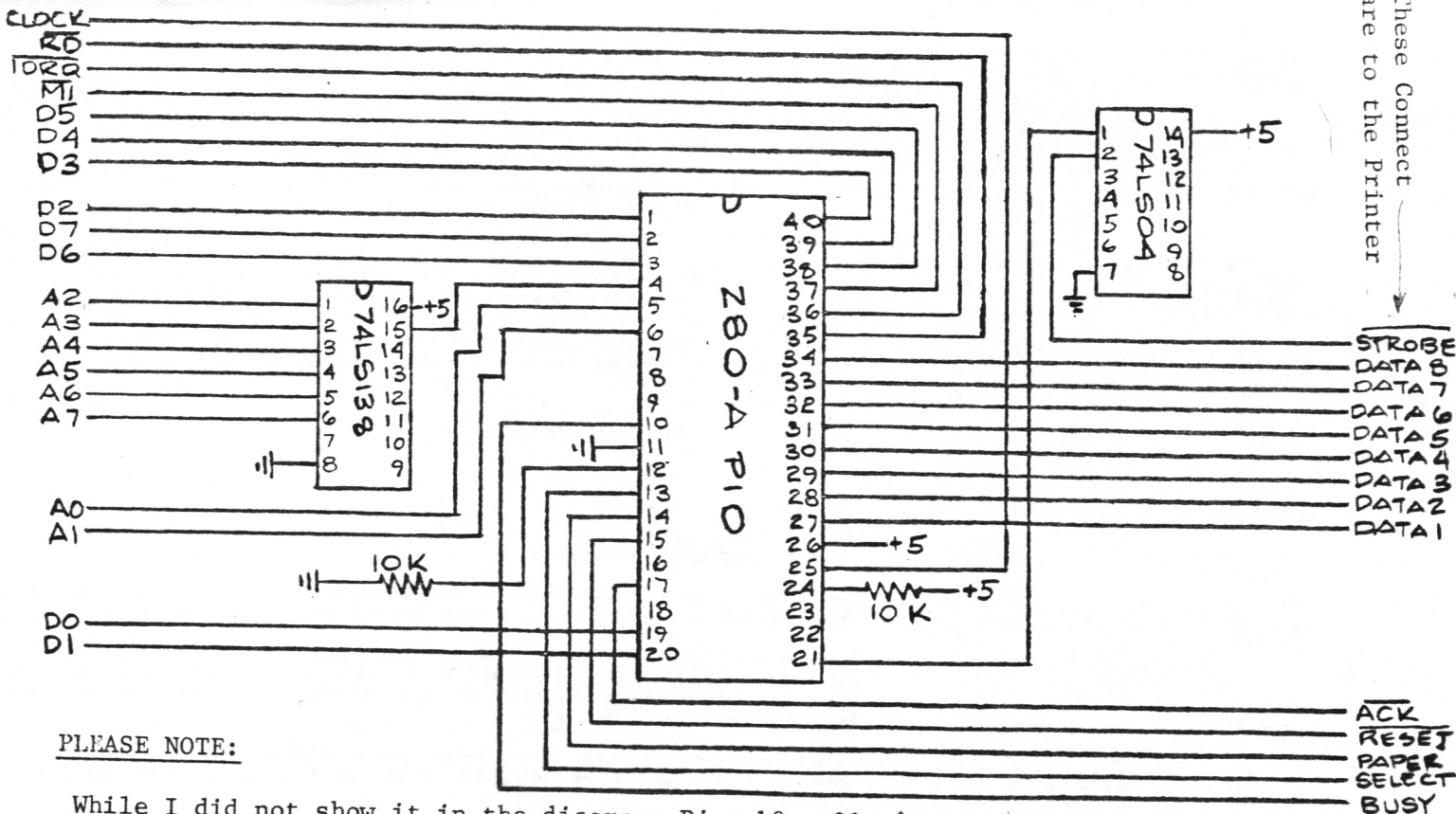
To the basic initialisation program Before you try to "LPRINT" or "LLIST" anything:

OUT 131,63
OUT 129,255
OUT 129,254
OUT 128,255

PLEASE NOTE that certain ZX Spectrum software will not load from a cassette recorder into your ZX Spectrum while INTERFACE 1 is connected. These loading difficulties can be solved by pressing 'NEW', followed by 'ENTER', before 'LOAD' whenever INTERFACE 1 is connected.

2 only 3 stand
Sinter 4 max
through

These Connections are to the 2068 or Spectrum Expansion Bus



PLEASE NOTE:

While I did not show it in the diagram, Pins 19 - 30 of the printer connector should be grounded. Check the technical specifications section in your printer manual for connector pin Designations.

Letters to the Editor

Barry D. Malpas
AT&T-Communications
Piscataway, N.J. 08854

September 17, 1985

L.I.S.T. Group
P.O. Box 438
Centerport, N.Y. 11721-0438

Dear fellow T/S enthusiasts,

I was recently made aware of your groups newsletter and would like to receive it. Enclosed is the required amount as described in your periodical. (\$5.00) I am also interested in back issues if they are available.

My current lab includes a ZX81, several TS1000's, (one with Aerco drive) a TS2068 and a Commodore 64 (boo hiss). My interest with all of this instrumentation is Astronomical Computing. If you have so inclined members in your group, I would like to know of them. Thank you.

Sincerely,

Barry
Barry D. Malpas

~~ATTENTION: STANLEY OBSERVATIONS~~

HELLO NICE PERSON,

THANK YOU FOR ANSWERING MY CARD. I LIVE TOO FAR BACK IN THE U.S. TO GET A PHONE SO MAIL IS MY WAY OF COMMUNICATION.

I THANK YOU FOR THE ZEBRA CATALOG. I LEARNED A LOT FROM JUST LOOKING AT IT.

I AM THE EDITOR OF A SMALL ASTRO NOMY CLUB. WE HAVE MEMBERS IN THE U.S.A., CANADA, AND RECENTLY IN USSR AND SOUTH AFRICA. WE ALL OBSERVE REGULAR ASTRO OBJECTS BUT SPECIALIZE IN TRACKING AND OBSERVING EARTH SATELLITES.

NATURALLY WE ALL HAVE DIFFERENT COMPUTERS BUT THE BASIC ELEMENTS FROM NASA ARE COMPATIBLE WITH ALL HOME COMPUTERS. THERE IS SATELLITE TRACKING SOFTWARE AVAILABLE FOR MOST COMPUTER S. TS1000 WAS HARD TO FIND BUT I HAVE FOUND TWO SOURCES SO FAR. LAST WEEK ONE OF THE MEMBERS SENT ME A T199 KEYBOARD AND I HAVE IT MOUNTED IN A NICE CHERRYWOOD LAPBOARD. IT WAS EASY TO DO AND IS SO NICE TO SIT BACK IN MY EASY CHAIR AND COMPUTE. ALSO PICKED UP A TS2010 AS YOU CAN SEE. I ALSO HAVE A PAIR OF OPEN TS1000S COMING. CAN YOU RECOMMEND A GUIDE TO SALVAGING THEM?

DO YOU HAVE ANY SOFTWARE TO TRADE OR OFFER?

OUR GROUP IS ABOUT TO FIND OUT IF WE CAN SEND A TS1000 TO OUR FRIEND IN USSR. HE IS A YOUNG ASTROPHYSICS STUDENT. HARD TO SEE HOW SENDING A TIME TO USSR COULD BE PROHIBITED. WONDER IF IT WILL RUN OFF THERE TV AND TAPE RECORDERS?

AGAIN THANK YOU FOR RESPONDING TO MY REQUEST. PLEASE POST MY ADDRESS AND GROUP NAME ON YOUR NEWS LETTER OR B.Y.B. IF YOU THINK ANYONE WOULD ENJOY OBSERVING SHUTTLE AND SALYUT SOVIET SPACE STATIONS. SEVERAL MEMBERS LIVE IN CITIES AND THE BRIGHT SATELLITES ARE ALL THEY CAN SEE BECAUSE OF LIGHTS. YOUR FRIEND,

Jim Hale
HCR 65
Box 261-B
Kingston, Arkansas 72762



SEPT. 23, 1985

PAUL DONNELLY
L.I.S.T.
P.O. BOX 438
CENTERPORT NY 11721-0438

ALBERTSON COMMUNICATIONS, INC.

DEAR PAUL,

JUST RECEIVED THE CURRENT ISSUE OF L.I.S.T. (OCT. 1985) TODAY ...AND AS USUAL I STOPPED ALL ELSE TO READ IT "COVER TO COVER" ...ONE PROBLEM MOST OF THE INSIDE PAGES ARE SO POORLY REPRODUCED THAT THEY ARE IMPOSSIBLE TO READ...

ALSO, REF: LETTER FROM BOB HOWARD...REGARDING HIS PROBLEMS WITH MICRODIVE...I CAN ADD A LITTLE TO THIS...

I STARTED OUT WITH A "WAFADRIVE" RECENTLY...IT PERFORMED VERY WELL...EXCEPT THAT I FOUND THAT NONE OF THE "BUSINESS" PROGRAMS AVAILABLE FOR SPECTRUM WILL RUN ON "WAFADRIVE"...

BOB DYL OF THE "ENGLISH MICRO CONNECTION" HELPED ME WITH A "MICRODRIVE" AND HAD NO PROBLEMS WITH THE BUSINESS SOFTWARE I HAD BEEN USING...

HAVE "FORMATTED" OVER 45 MICRODRIVE WAFERS SO FAR AND HAVE NOT FOUND ONE WITH ANY PROBLEMS (EXCEPT FOR ONE THAT GOT "CHEWED UP" IN THE MICRODRIVE... THE MAJOR PROBLEM AT THIS POINT IS BEING UNABLE TO USE A "MONITOR" WITH THE SPECTRUM PLUS...MUST USE A UHF TV WHICH LEAVES MUCH TO BE DESIRED...

ONE FURTHER POINT TO BOB HOWARD'S LETTER...I DID FIND THAT MANY OF THE PROGRAMS THAT CAME UP "NO FILE" WERE BECAUSE OF A PROBLEM WITH UPPER CASE, AND LOWER CASE LETTERS BEING USED FOR THE FILE NAME...ONE MUST BE VERY CAREFUL TO USE THE PROPER "CASE" WITH MICRODRIVE... WITH WAFADRIVE IT AUTOMATICALLY SELECTS THE PROPER "UPPER CASE OR LOWER CASE"

VERY TRULY YOURS,

Stan
STAN MACCARONE

MACCARONE NY 10543
914 496-7787

Stan:

Sorry about that poor quality copy. Did anyone else have the same problem? Let us know. You are the final quality control inspectors.

Most programs can be modified to run on WAFADRIVE. Talk to Don MacCarone (where you bought the drive) and/or buy the LERM "tape to WAFADRIVE" transfer program.

Adapt electronics, in the U.K., sells an RGB adaptor for the Spectrum. That, coupled with an RGB monitor, like the Sears mentioned last issue, should give you an outstanding picture. It would also be possible to tap into the video signal directly for use on one of the cheap monochrome monitors. We'll see if we can get a line on where to make the connection physically in a Spectrum plus.

Thanks for your comments.

PD

How "letters" work - A Bootstrap

We receive dozens of requests for information each month. Some are general in nature, but most ask us specific questions about hardware, software, and compatibility.

Since we don't (and can't) have all the different types of HW & SW available, your editorial staff simply can't answer all the questions raised. We try, e.g., by sending pages from back issues of LISTING or referring the questions to another source of information, but we need your help.

If you see a question in the letters section, and you know the answer, please send the answer to LISTING and/or the individual. If you send it to us, we'll publish it and pass it on.

Oh yes, we don't print members' street addresses unless told specifically to do so.

LIST Group

Buenos Aires, September 1st 1985.-


List
P. O. Box 438
Centerport, N.Y. 11721-438
UNITED STATES OF AMERICA

Dear Sirs:

Enclosed herein you'll find a modification to "Fighter Pilot" which will allow you to control your plane through the use of a Joystick. I don't know if you have experienced the problem but the version commercially available in Argentina comes just with keyboard option for the TS 2068 but with KEMPSTON Joystick interface option for the SPECTRUM. If you have attempted to follow the enemy plane in air-combat you should agree with me that it is almost impossible. The mod. consists in: the addition of some POKES in the BASIC loader (which has to be MERGED rather than LOADED in order to prevent autorun); recording of the modified loader over the original and the recording, at the end of the existing code, of the output of the enclosed BASIC program (which has not to be recorded). Then you may rewind the tape and load the program in the usual way.

This is my contribution to LIST.

I'm as well trying to develop some hardware/m.c. software and, perhaps, you can, on return, send me some information about I.M.2 handling, as none of the documentation I've found in my country says more than the TECHNICAL REF. MANUAL (by Corcoran & Branigin) has on pages 14 and 15. By the way, my copy came without appendix C in which, as per the index m.c. for advanced video modes is inclosed; have you a copy of it?


.....
CESAR ANTONIO BARRABIA
Brown 570
(1852)/BUZASCO
Buenos Aires - Argentina

MODIFICATION TO FIGHTER PILOT

1.- Modification of BASIC LOADER

1.a - Load the BASIC loader with MERGE". Stop the tape as soon as the OK message appears. Rewind the tape to a couple of inches before of the beginning of the BASIC program.

1.b - Edit the only line of the program and add between LOAD " " Code and RANDOMIZE USR 63 800 the following statements:

LOAD "stick" CODE: POKE 29914,205: POKE 29915,0 :
29916,91: POKE 29917,201:

1.c - SAVE the modified loader over the old one. Be aware of stopping the tape as soon as the SAVING ends, otherwise you will erase the machine code.

1.d - Advance the tape up to the end of the machine code.

2.- Type and run this program

1* FOR X= 23296 TO 23340

2* READ a

3* POKE X, a: NEXT X

4* DATA 62, 14, 211, 245, 62, 1, 219, 246, 47, 230, 143,
33, 193, 103, 203, 95, 40, 2, 203, 214, 203, 79, 40,
2, 203, 230, 203, 71, 40, 2, 203, 222, 203, 127, 40,
2, 203, 198, 43, 203, 87, 200, 203, 230, 201.

5.- SAVE "stick" CODE 23296,45

3.- Record this code. Rewind the tape. LOAD the program.
Select KEMPSTON option. Use left Joystick.

20 September '85

Dear Paul:

I was just reading your letter in ZX Computing (Aug/Sept. '85), and have to disagree with some of your statements on hardware and I/O ports.

Point one: The ports used by the TS 2050 modem are in fact 73 hex and 77 hex. Not C7,CF,D7,DF as was mentioned in the preliminary "Third-Party Software Guide".

Point two: The 2068 joysticks use a special I/O register that is a part of the Sound Chip. The ports for the sound chip are F5 and F6. FE is used for the BEEP command, which is not produced by the sound chip at all, but is rather produced by circuitry similar to that in the Spectrum. Your technique for reading the joysticks is quite correct.

I'm very pleased that your order information got printed, as I am considering ordering a few English items soon.

Good luck with your user group in all your efforts, and congratulations on your newsletter (I've seen Tony Gomez's copy).

Yours,

Tim Russell
912 Kingsley Circle
Thousand Oaks, Ca. 91360

Ouch! Tim's was the first protest letter we received. Corrections have already been published (Oct. '85 was printed on 21 Sept) and a letter has been written to ZX Computing, as well. Tim is that the Tony Gomez of Timex Portugal? (We sent him a sample a while back and don't have a member by that name), if so, is there any more news?

PD

TO: L.I.S.T. Users Group

Monday Sept. 9 1985

Dear Mr. Donnelly,

My name is Richard Toy. ...no I'm not Chinese. I read about you're "L.I.S.T." Group in the AUG/SEPT issue of ZX COMPUTING magazine, from Britain (I get my issues off the news-stand in Toledo OH.).

I also read the "Computer User". I found an address similar to the address that I sent this to but its addressed 10 Idle Dow Drive. Is this your new address?

The reason I'm writing is that, for 9 months now I've owned a T/S 1000 computer, a Timex 2040 printer, and a 16K RAM-PAC. I bought my T/S 1000 when prices were at rock-bottom. I gave \$29.95 for the computer, thinking it was just a toy (no fun intended...). I have really grown to ENJOY my T/S 1000, and up until 2 weeks ago, I was content to just buy my monthly ZX Computing magazine. All that has changed now due to the loss of (actually, it was SWIPED!) my computer. As of now I'm stuck with a printer, 21 cassette tapes, a 16K Ram-Pac, 7 rolls of printer paper, a B/W T.U.,

(I already have a 15 in. color T.U.) and a \$40.00 cassette recorder. Instead of getting rid of this stuff, I would like to find another T/S 1000 or ZX81 or even (if worse comes to worse), a ZX80. If you or ANYBODY you know can get in touch with someone who has any of these computers, I am willing to let him go for, give or take \$40.00. I would like to have a 2-year subscription to your newsletter and contribute programs, ideas, articles. (Yes, articles - I happen to sell PC-4 software - PC-4 as in Radio Shacks pocket computer PC-4) ect...

I would be most grateful if you could help, but even if not, please let me know through the self addressed stamped envelope enclosed... even if you send me bad news. I want to thank you for supporting you fellow Sinclair/Timex users... even the ones like me who don't know any better to support his or her users group in one way or another, even though Timex pulled the rug out from under all of us.

Well, that about it for now. Its Saturday evening, there should be something good on T.U. to watch...
OH NO. Kers watching STAR TREK.

Keep on computing. ...Many Many.

RICHARD E. TOY, 217 S. Pennsylvania Ave., FREMONT OHIO 43420.



Dear Paul,

I will try not to take up too much of your time & so I'll make this as brief as possible.

First, I would like to join your T/S Users group. Enclosed you will find a check for \$15.00, as was quoted in ZX Computing magazine for one year membership. I hope I'm not being ripped-off (no-offense), but I've really been cheated so many times by bad business that I'm disgusted. Such as Syntax magazine, I got 3 issues, the magazine stopped & they got my money, I got nothing. I not only didn't get a refund, I didn't even get a notice to say they were sorry. Another one, Timex User or Sync not sure which one at this moment, stopped their magazine & sent me one I didn't even want. Rotten way to make money if you ask me! Their probably think it's funny, & we're the poor clowns! Since we're on the subject do you know anything about T.S. Horizons magazine? The last issue I got was a May/June & it's almost October. No telephone number is available!

Well, I'm sorry that I told you some of my problems, but I'm probably not alone! Now I'll get on with the computers. I own a T.S. 2058 & a 1000. There is a few things wrong with the 2058. It seems like the problems started with the business of using a tape recorder with a condenser microphone, they usually have counters also & so it seemed to be nice to use. It probably really wasn't a good thing. Because after that the computer would crash or just stop. I'm not sure exactly why or how but I got it so it don't do that by inputting in the immediate mode as soon as I turn it on.

ON ERR RESET:
POKE USR 0, ABS 255

so that seems to be alright now, but I bought a Spectrum ROM cartridge that fits in the cart-
ridge holder. I now have that ROM problem when I turn on that ROM, after a while there is a warning beep and it stops. It might be a bug in display mode. It would be a good idea to produce some lines as in that mode. Would you know of any way I could correct this so I may use my Spectrum ROM? You have my gratitude if you have an answer! Maybe there is a way to get by that display mode, if it is the problem. Also is there a way to stop the banks other than home, extension ROM, & dock? It maybe they are causing a inter-
rupt.

Well, Lord knows I'm really not a loser on this thing. I got it to function. It's a far genius, but I'm not exactly a moron either. I'm really not nuts, the good Lord knows, about spending a lot of hours on this thing trying to get it to function the way it should. Business is the one losing out on this computer, if they would have let me publish a lot of matter on it, I might have accomplished a lot with it. It's probably one of the best in the price range.

I'm very excited about getting your publication, so please send it as soon as possible.

Thank you very much!

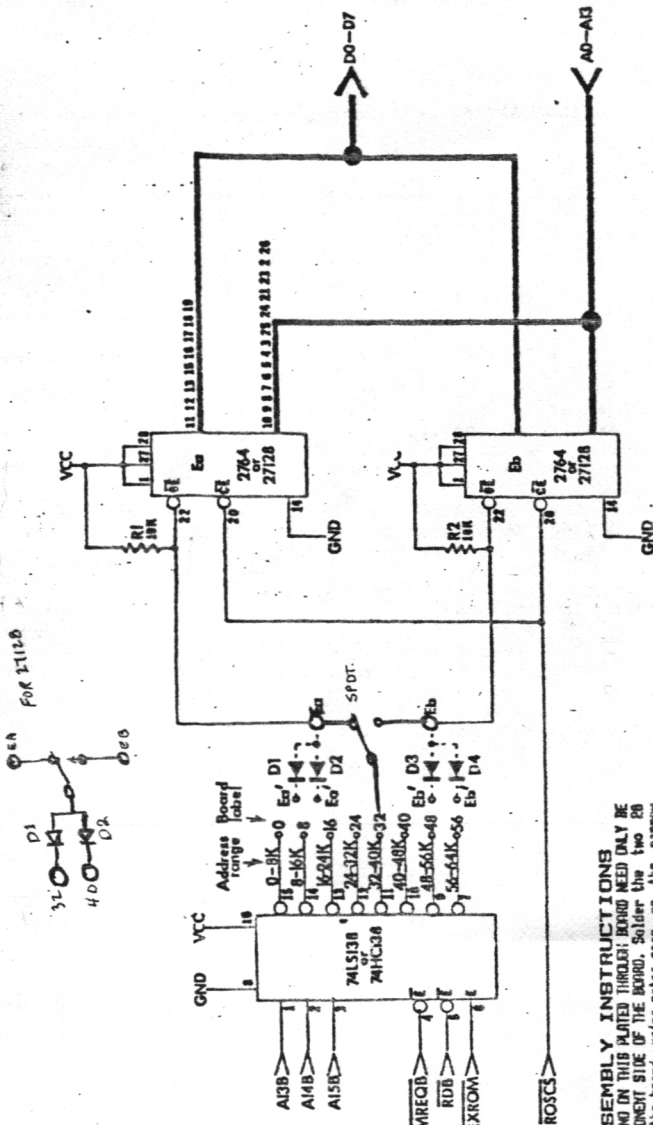
Sincerely yours,

Marini
Marchand

P.S. Send to me, at this address

Marvin F. Marchand
17039 Ivanhoe
Roseville, Michigan
48066

TS2068 USER CARTRIDGE BOARD



BOARD ASSEMBLY INSTRUCTIONS

STEP 1 ALL SURVIVORS MUST WAITED URGENTLY. MONITOR DAILY FOR
EVIDENCE OF RESISTANCE TO THE ACTION. IF ANY RESISTANCE IS NOTED,
STEP 2 IN THE MARCH-APRIL SIDE OF THE BOARD. Soldier the two
pin IC socketed onto the board with extra care on the narrow
side of the board. Soldier resistors R1 & R2 onto
the board as indicated on the pcba component side
of the board.

STEP 3 Soldier the LS/MC1301C IC in place on the board. DO NOT
use an IC socket for this chip, or the board will not clear the
1526A3 case upon insertion.

STEP 4 The acetone and a soft cloth or a commercial flux
remover to clean all traces of flux from the board. CAREFULLY
inspect all of your soldering, hunting for poorly soldered
points or solder blob shorts to nearby traces, touch up anything
looking even remotely suspicious.

STEP 5 For ETFAH, soldier a w/a jumper from the 130A's pin
marked "CE" to the doughnuts started "Ex".
respectively. For ETFAH, soldier a w/a jumper from the 130A's
pins marked "GND" to the doughnuts started "GND".
resistor R3. Soldier a w/a jumper from the 130A's pins
marked "GND" to the doughnuts started "GND".
two on CE & GND to the doughnuts started "CE" &
to the doughnuts started "GND".
up to the "EN" doughnut. The Cathode end is the diodes!

Paul D.

On the reverse side I've drawn a single pole, double throw switch in the Oliger board schematic. I've used this method for 2 EPROMs so as to not waste half the board(socket) with just one chip. I've not used the 16K EPROM this way but believe it will work. I have not seen this method described in any newsletter, but was wondering if you or any of your associates had discovered it! I wrote to Oliger and he said he had used it this way.

Harold Römer

Thanks Harold, your sketch is attached.
ones question.

That's sure to be an answer to some-

Marvin.

Sounds like you had a problem with your ULA or the "dead cockroach" board. I doubt the condenser microphone had anything to do with your crashes. It is possible that a short developed in your "ear" circuit because of a defective component and high output from the tape recorder. You didn't mix up the mic ear or power leads, I hope. How did you come up with POKE USR 0,255?

What kind of ROM cartridge did you buy? Try OUT 244,0 followed by RANDOMIZE
USR 0. The first works on the cockroach(basic bank switch) to enable the home
ROM. If you are using a true Spectrum ROM, and not an emulator, the second
makes sure you are properly initialized.

You said "after a while" it beeps and stops. Can you be more specific on how long & under what conditions this happens? (see also-the OCT/NOV '85 issue of ZX Computing)

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L.I.S.T.

P.O. Box 412
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Republic of South Africa

Centerport, N.Y. 11721

Paul Donnelly
Long Island Sinclair Timex Group
P.O. Box 438
Centerport
NEW YORK 11721-438
UNITED STATES OF AMERICA

1 October 1985

Dave Clifford
Clifford Associates
13910 Hallidale Avenue
Gardena, Ca 90249

Dear Dave:

As we discussed, I've enclosed a copy of that X-Modem terminal program for the Spectrum. If this is of any potential help to communications users, please let us know. A review would be appreciated, if you have time.

Now the bad news. My Z-link still doesn't function properly with all my TS 2068's. I spent most of yesterday running the lines out to a bread-board and testing the BE circuit. Finally got it working on one of my systems by replacing the 74LS10 with an old 74H10 (used a 1K resistor in place of the 680 too, but I don't think that's a factor). I then made the mistake of hard-wiring the H10 on the board without checking it on my "dog" system. It was this ("dog") system which gave Nazir P. some sleepless nights while he was developing his twistor, by the way. The newly wired board works on my "regular" system, but still not on this one board. Unfortunately, this is the only board on which I've put an internal RGB interface, so I'm stuck with needing two 2068's on my desk in order to have a universal system and good output. The Z-link will have to go on the shelf of "things to fix someday" I'm afraid.

I'd suggest you check with users (some may be too embarrassed to admit failure) on whether Z-link works on their machines. I have only seen 4 units (I have one, Nazir has 3) and none of them will work on "dog" computers. In fact, his don't work on any of our machines and of course, mine only does because I changed it. It is clearly either a timing or bus loading problem (yes, I know, the H10 helps one and hurts the other), and you may find you'll have to offer a "fix" to your customers. Fitting a socket on the unused area of board should do the trick. (An area for pullup resistors for the data lines for people with old EMU's or ROM Switches would be wise, too).

Finally, if you do redesign the board, I suggest that the non-extended edge traces be terminated in plated-through holes. This should make your assembly easier and allows hackers who wish to use the other pins, easy and mechanically reliable access to them. Oh yes, I'd have preferred contact cement to the "crazy glue", as well.

Hope these comments are of some help.

Very truly yours,

Paul Donnelly
Paul Donnelly

Dear Paul

I am an Irishman living near Cape Town, South Africa.

I use a Sinclair Spectrum with many extras, but I still have my old ZX81.

With my ZX81 (in the good old days when dollars were not so expensive) I bought a U.S. Memotech 32 K Memory to attach to my 16 k Rampack, giving me 48 K memory. I also imported the RS232 Serial Interface and a Murra Modem. With this outfit I assessed Compuserve getting a free demonstration. I did not know in those early days that the Ma Bell system was different to the European/African phone system, so my ZX81 copine can only work with the United States, and phone calls + 7000 miles) are very expensive.

However, once in a blue moon I would like to access a Bulletin Board Service - an interesting one, preferably on your East Coast which is a little nearer. *Can you help me with phone numbers?*

(Does the ZX81 software run on your Timex? If so, I have a couple of spares that I can send you sometime.)

If you can spare a second, drop a line. Don't forget to give some B.B.S. phone numbers for computer contact.

Yours sincerely

Geoff

GEOFF WARD

Thanks also to:

ZX/TS Forum
PO Box 951
Boynton Beach, FL

33425-0951

We hope these help. Watch that phone bill though.
PD.

ZX Forum 305-439-5077
Micro-Systems 305-737-1590 (8 1 none)
Zebra Systems 718-296-2229
Phoenix 302-734-0179
River Cities 304-652-1416
Unknown system 216-327-1099 (8 2 none)
Time-X-Change 213-329-3922 (8 1 none)
No Name BBS 219-429-7835

Earth News 718-615-0096
Omni 718-837-2881
Forum 305-439-5077

Dear sir,

In April of this year, I had the pleasure of attending one of your meetings as a guest of Mr. Paul Chomitz. At the time I was asked if I thought of becoming a member, but I was elsewhere engaged, and never followed up on that idea. Well the time has come to again consider joining the ranks of your membership.

If possible, could you send me a sample of your current newsletter, as well as any information as to what L.I.S.T. is up to these days, and also your current membership fees.

I am currently operating a TS2068 with a TS2050 modem, as well as a full blown 64k TS1000 with the Byte-Berk MD2 modem. Both computers are running constantly in the operation of my business.

Respectfully,


John Falto Jr.
John Falto Jr.
Phoenix Data

644 GRAND ST.
BROOKLYN, N.Y. 11211
(718) 388-8887

THE NETWORK

VANCOUVER SINCLAIR USERS GROUP
NETWORK COORDINATOR: Rod Humphreys
2866 Highview Place
Port Moody, B.C., V3H 1N5
CANADA

AUG 12, 1985


Box 504
Bellingham, WA 98227-0504
R. L. HUMPHREYS
2866 Highview Place
Port Moody, B.C. V3H 1N5

Dear Fellow Sinclairphile,

Let us start out by asking "ARE YOU STILL THERE?" I sure hope so. Actually it's amazing the continuing support that exists for a funny looking wedge-shaped "toy" computer from Britain and its Big Brother, not to mention the "American" offshoots put out by a cheepo watch outfit. I guess if we wanted to go down to the Kmart and pick up a Commodore, we would. But then I think your average Sinclair Nut is just a cut or two above your average "Kmart" person. (Also slightly masochistic.)

Anyway, the reason I'm calling is to invite you to join our club--THE NETWORK. We, The Sinclair Users of Vancouver, presently exchange newsletters with about 48 other user groups in the U.S. and Canada and would like to include you in the NETWORK. I have enclosed a copy of our monthly missive. The more we stick together in this world of nonsupport the better off we all will be.

No dues, no meetings, no requirements of any kind. Just send us a copy of your Newsletter each month (or whenever it comes out) and we send you one of ours.

SHARE THE NEWS, SHARE THE VIEWS

SHARE THE SPIRIT

Your friend in Sinclair,

Rod Humphreys

Rod Humphreys

P.S. I know the newsletter says John is the Network Coordinator but he thought it would be fun if I did it for a while. There he goes--thinking again. TTUL

Long Island
Sinclair Timex
Group

Dear Listers,

I have a lot of little things to mention

1. Put me ON advertisers list.
2. Do List Associates take requests or do they buy things and then look for buyers.
3. I am also curious about the use of MODEMS with INT 1 same as STEVE ISHII last month. I also might get a modem with my Z-Microdrive.
4. Is anyone at LIST running a PTR on the RS232 INT of ZX INT1? Also are there any interesting uses for any of the other capabilities of ZX INT 1.
5. Now to my main reason for writing, could someone make sure that I am on the Library tape list I am waiting and have yet to receive one. THANKS MUCH James P Tedone
131 Sheridan Rd.
Efield, Conn. 06062 ok Publish Address

Jim,

The response to that questionnaire was so low that we haven't implemented it.

List Associates do take requests. If they can get it for you & make a few bucks, they will try. They also still have Spectrum ROMs and some TS1000 software.
The MODEM problem is serious and needs a hardware and software fix. You'll need to have a mechanism to disable IF 1 when "on line".
Anyone else? See the hackers notebook for October for one use. Find someone else w/ IF1 & play the "net" game.
You'll be in the next group of new members and should receive 3.5 about the time you read this

Friday October 4th

to M. Pashtoon & P. Donnelly
c/o L.I.S.T.
P.O. Box 408
Centerport, NY 11721-0408
from Richard Ford
P.O. Box 183
Warrenton, OR 97146

Dear Sirs,

I am writing in regards to your article in T-S HORIZONS #14 interfacing the T/S 1016 RPM PPCF to the T/S 2068. I enjoyed it! I hope to see more like it in the future.

I am writing a routine for the 2068 which will print a char array of 24 lines by 85 columns to screen. I have been hindered by the limited memory the 2068 has when in the EXTENDED MODE. I feel that 16K of bank switched memory would be just what I need.

My problem is I'm a beginner with a project like you've described in T-S H. I would like to ask if there is any chance that you have put together a kit of parts? I have a ZEPHR PROTOCOL 2068. It also has a couple of 1016's in the closet. If there is such a kit available, please let me know?

Also, could you please let me know the price for a subscription to L.I.S.T. NEWSLETTER ONLY?

Sincerely,

Richard Ford

Richard,

There is a Spectrum program called Microprint 85 which will print 85 characters (3 bits wide) on the screen. I'm having a little trouble with "extended mode". To get more than 64 characters in 64 character mode, you'd need to re-define the character set in a method analogous to that used in MP 85. I.E., use fewer dots per character. It is possible, but seems an onerous task.

Sorry, there is no such kit. The Zebra proto board would be fine though and the other components are easy to find. Try the book "Powerful Projects for Your T/S", from Scott Foresman Co. for an introduction to hardware interfacing.

Dear Sir,

Is it possible to expand the 2068 to one megabyte by designing a memory in 64K blocks?

If so how can I do it with a Zebra edge card connector and proto board? Please help.

Dave Johnson

Dave,

Yes & no. First you would have a lot of trouble getting all the way to 1 megabyte, too much hardware is required. Second, the TS2068 only implements the home, EXROM & dock banks, as supplied. To get more banks, you need decoding for each one.

Build a decoder on a Zebra proto board & you should be able to get 64k or so fairly easily.

Don't forget that TIMEX 16K Rampacks can be used (see back issues of LISTing and TS Horizons). The Byte Back and Memotech 64K packs should be useable too.

Our thanks to:
Computer Shopper Magazine
407 S Washington Ave.
PO Box F
Titusville, FL 32781
As far as we know,
CSM does not take foreign
subscriptions. You might
write to editor Stan Veit
though and ask him for more info.

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 PRICE: \$12.95

"Computer Interfacing Techniques in Science" contains some 30 experiments for use on any ZX computer (ZX81, TS1000, 1500, Spectrum or TS2068). It is definitely not for the rank beginners to interfacing circuiting, but can serve as a good "second-book" for those who already have some circuit-building skills and wish to expand their horizons.

The book is comprised of 7 chapters and 4 Appendices, one of which is a unique, if awkward to use, cut-out and paste-up manual assembler device. The main thrust of the book is, as the title suggests, for technicians, scientists and teachers as well as hobbyists. It is clearly intended to serve as a sort of lab manual for hardware experiments.

The preface and chapter one give very general background information about computers and number systems in general. Brief mention of TS/ZX computers is made. Chapter 2 is a crash course in digital logic, from simple AND/OR gates up through the more complex decoders, counters and timers. It is also in Chapter 2 that we begin to realize that this book is definitely not for the novice.

As the authors begin to address "Hardware & Tools", and breadboarding, we find no photographs or sketches of hardware (save one sketch of a blank breadboard) or tools. A very cursory verbal look at construction techniques is soon followed by the biggest disappointment of the book: the authors specify the purchase of the FDZX1 interface board. This means that if you want to do these experiments, you'll probably need to purchase that board. The address of the vendor, Group Technology, LTD, Box 87, Check Va. 24072, is given. You'll probably have time to order the board though, since it (and the computer as well, for that matter) is not needed for the first 6 experiments. The experiments are well thought out and given just a few relatively common TTL IC's, a garden variety solderless breadboard, and some prior knowledge on the use of same, the average reader should be able to experiment with and begin to understand basic logic circuits.

In Chapter 3 the system buses, and their uses, are discussed, and a fast reference to machine code programming is given. Interestingly, to maintain compatibility in software between the TS1000 and 2000 series the author has not used the IN and OUT BASIC commands of the latter. This means you must use a USR call in either machine. The "experiments" in this chapter involve inputting machine code bytes and running short programs which illustrate the

Chapter 4 begins with a statement that there are 256 I/O ports. In fact, with extended addresses (use the BC pair) there can be over 65000 I/O ports. The authors may be simply trying not to confuse the reader, at this point. Parameters for I/O ports; gating, addressing and timing are discussed and finally, a schematic for the buffered interface circuit is given. Here, for the first time, you'll need your interface as well as breadboard to conduct such experiments as creating a device select pulse, setting up simple input and output ports and preparing an advanced I/O port using the 8255 P.P.I.

Finally, in Chapter 5, we get to the real meat of the book. The authors at first generalize (e.g., a serial-to-parallel conversion circuit is discussed, but not realized), but soon get down to serious interfacing. The first experiment here gives the circuit and software for an effective analog joystick interface using 555 timers and simple "pot" type joystick (e.g., Radio Shack, Apple). A real time clock is built and programmed (58167 or 53167 IC-one of the few typos in the book). A "dead end" RS232 port is built. This port can only talk to itself and is thus of limited usefulness except for instructional purposes.

Analog Conversions are covered in more detail in Chapter 6. Light sensitive devices, an electronic scale, temperature measuring and control are demonstrated in these experiments. Again, a sound experimental technique is followed and the serious hobbyist or student will get much from these lab trials.

Overall, I found "C.I.T. in S." delivered valuable instruction and information. It would serve well as a supplemental book to "Powerful Projects" (reviewed elsewhere) from the same publishers, and I'm certainly not unhappy that I purchased the book. However, as with many such works, it is seriously flawed in not delivering all that is promised. You're not told until page 28, in one sentence, that you aren't going to build your own interface. The back jacket uses phrases like "anyone", "Hands-on" and "low-cost" to describe the book. "Anyone" had better have a pretty good understanding of electronic hardware, not just electricity. The experiments are "hands on", but most novices would not be able to assemble the preliminary hardware (boards, connectors jumpers, etc.). That "hands on" portion is given sort shrift. The FD-ZX1 boards price is not discussed, but it is not "free". Further, some of the parts mentioned are hard to come by (e.g., strain gages).

Again, the experiments are good and while some important theories are discussed and not implemented, those that are, are done well. Still, the distant, slightly too theoretical approach of the authors and need for commercial IF board cause me to downrate this work to a 7 out of 10, for the novice reader. Intermediate experimentors will enjoy it more, in my opinion.

HACKER-SACKER

ON ERR.....

The ON ERR... command on the TS 2068 can be used to make your programs essentially "unbreakable". If the first line of your program, for example, is:

```
1 ON ERR GOTO 9000
and there is a line 9000 of this sort;
```

```
9000 CONTINUE
```

any time a "break" error occurs the program will "CONTINUE"

Slightly nastier, and certainly terminal, is this line,

```
1 ON ERR GOTO 9000
```

Followed by:

```
9000 NEW
```

The meaning of this should be obvious.

For Password protection try:

```
1 ON ERR GOTO PASS
```

Where "PASS" is a line # containing a new ON ERR command and a password routine. E.g.,

Line #	CODE
PASS	ON ERR CONTINUE
PASS + 10	INPUT "PASSWORD",P\$
PASS + 20	IF PS = "PSWD" THEN STOP
PASS + 30	GO TO PASS

ACCIDENTLY ON PURPOSE

In addition to "disabling" the BREAK key, the use of ON ERR can also prevent hackers from stopping a program through the use of wrong data. As you may know, if you respond to an INPUT statement, after moving outside the quotes, with the keyword STOP, you create the error message: STOP IN INPUT, which halts the BASIC program.

Entering a character or string of characters when asked ^{to} input a number (INPUT without the ""), will have a similar effect. Good error trapping can help you avoid most such situations (e.g., always accept a string and translate it to numeric data, or better yet, use INKEYS), but ON ERR... is good in these situations, too.

It is virtually impossible for a hacker to break into a program on his 2068 if it is properly protected using ON ERR. Notice I said, "2068". One easy and obvious way of defeating this protection is to load the program into a Spectrum. The ON ERR means nothing to that machine and the program will stop. The hacker then has only to remove the offending statement (or better yet, replace it with one of precisely the same length, using REM, perhaps) and re-SAVE the now-unprotected version of the program. ON ERR looks like this on the Spectrum ([)

THE DOUBLE BOGEY

ON ERR works fine once the program is loaded, but even on a 2068, can be defected by the hacker who writes his own "false" header and removes the autostart (more later or see back issues of LIST). Another trick to add to the arsenal for first line defense is the use of a dummy CODE load. Here, you save a program in parts, which looks much like a conventional LOAD (see last month) i.e., BASIC loader, screen, machine code section. However, the end of the screen load on the "code" section can actually be more BASIC. You might even fool the uninitiated into thinking you were using machine code, when, in fact, your program is completely in BASIC. Your BASIC loader had to be created separately from the "real" program. It will load the real program as if it were CODE and then execute it. This is accomplished by first finding out where your variables and program start (the system variable) and end (for all intents and purposes, the variable E line). Subtracting these to get the program length, you will enter:

```
SAVE "SECRET" CODE PROG, LENGTH
```

First, of course, we need to "fix up" certain system variables (PORG, NXTLIN & VARS) in order to configure the system the way we want it. This can be accomplished by POKEing the correct values on better yet, by executing an LDIR just prior to SAVING the program.

Now, the BASIC loader tells the hacker practically nothing, as all it appears to do is load some "Code". That "CODE", of course, is the real BASIC program, which takes over as soon as it is loaded. To break into this kind of program, the hacker must use a header reader. Any start address below the normal address of PROG (e.g., like 26710) tells him that the "CODE" block actually contains BASIC. (See also, last years article "Breaking into Transylvania Tower").

This same technique, and a little machine code should allow you to set up "real" and "phoney" BASIC areas. The "Phoney" BASIC program could be a non-functional simulacrum of your real program with just one little USR call which makes the jump and resets the start of BASIC.

Here's a very simple example, all in BASIC. For your "real" program enter:

```
10 PRINT "GOTCHA"
```

We could check E Line now to see how long the program is, but let's just assume 200 bytes. Now:

```
PRINT PEEK 23635 + 256*PEEK 23636
```

The number which appears on your screen is the start of basic. Let's suppose it was 26710 ("norma" in a 2068). Enter:

```
SAVE "GOTCHA" CODE 26710,200 and SAVE this short BASIC program  
CODE. Now:
```

```
New ("GOTCHA" is gone)  
10 PRINT "LOADING CODE"  
20 LOAD "" CODE 26810  
30 POKE 23635,186:POKE 23636,104:RUN and SAVE this one with
```

```
SAVE "LOADER" LINE 10
```

Now New your machine again and enter:

```
LOAD""
```

Rewind your tape and let "loader" play in. It will come up running. Now rewind again and play in "gotcha". What happened?

Loader seems to have disappeared and gotcha which we saved as CODE is now, apparently, the only BASIC program resident. How did we do it? See those POKE's in line 30. They tell the system that the Basic Program starts at 26810 (104*256+186). The 2068 then bythely follows orders and resets BASIC TO start at 26810.

RIDING the BREAKERS

If the ROM's LOAD routine is actually LOADING a program(not some psuedo load routine within the code), most users know that they can BREAK into the program by using the break key during the loading sequence. Unlike the old ZX81 this does not cause a NEW. One way to partially break a program then, is to ride the break key. This is done by first timing the load using a stopwatch. The end of the header is often used as a starting place and the final beep of the load as the end. The hacker, knowing that the program takes, say, 32 seconds to LOAD, will then start the LOAD, but will hit the break key after 31+ seconds. If (s)he's fast enough, he or she will get to see perhaps 99% of your program.

However, do you remember what comes at the end of a LOAD, after the BASIC program? That's right, the variables area. By using specially assigned variables, you can make your would-be pirate want to jump ship. While it is standard practice to define variables within your program, this is not necessary with Sinclair BASIC. Try this in immediate mode:

```
LET a=10
```

Now enter this little program:

```
10 GOTO 20
12 REM define vars (phoney)
15 LET a=100
20 PRINT "The value of a is ";a
25 GOTO a
29 STOP
100 PRINT "Can't get here!"
```

A hasty look at the program would lead one to believe that 'a' was 100. It is not, you defined it as equal to 10 and it will remain that way unless someone GOes TO line 15 or RUNs the program.

This technique can be used to define all your key variables & even line numbers for jumps. If you put in enough of them, the pirate will probably get very discouraged, very soon. Unless, of course, he has a variables listing program, and an editor utility with search and replace commands, in addition to some other way to break your program from the outside. With these tools it would be child's play to stop the program, list all the variables and their values. Substitution can also be done almost automatically. If you've protected your program with ON ERR first, the hacker will still have a tough time with 2068 programs. He'd have to read the header, and then either generate a false header, without autostart, or(simpler to write,harder to interpret) Load the program as CODE and search thru it for the variables area.

More to come.

@1985 P. Donnelly

I/O-PORTS-1

CENTRONICS PORT
(with TASWORD II compatibility)

By : N.A. Pashtoon

In mid-April while writing the TC2068 and Timex Disc Drive preview I borrowed a serial input printer (CG205?) for use with my IF/1 and microdrives. The printer just did not want to work with the IF/1. Then I got a Mannesman-Tally MT160L printer, which has both serial as well as parallel inputs. I was able to prepare the preview, though the performance of the IF/1+printer still left much to be desired. I have ironed out these problems, by using lower transfer rates (2400 baud) and printing not more than 25 lines at a time.

In order to eliminate these constraints I designed a parallel interface base on the Intel 8255 PPI chip, which has worked flawlessly since May. It is worth mentioning that the Oliger Interface was not available at the time, and I refused to pay rip-off prices for the available printer interfaces. If all you need is a Centronics interface for your printer, I will suggest that you buy the Oliger Interface which is very reasonably priced, and the experience of many users suggest that it is a reliable and excellent product. But if you need a very flexible and programmable port, which you can use for all kinds of control purposes, an interface based on LSI devices is very handy for a variety of experiments.

The circuit for the interface and a table of port assignments is shown in the figure. The choice of the ports is based on a blurb I saw in a British magazine about the ports used in Tasword II for the Kempston IF. When I finished the hardware and verified its operation from Basic with IN and OUT commands, I discovered (to my dismay) that the circuit refused to work with Tasword II. After a disassembly of Tasword II (a job I should have done first) I wrote a patch of code. The procedure follows:

1) In the Basic portion of Tasword II edit line 5 (if it already exists) or create line 5 with the following initialization commands for the 8255:

OUT 127,137:OUT 59,1

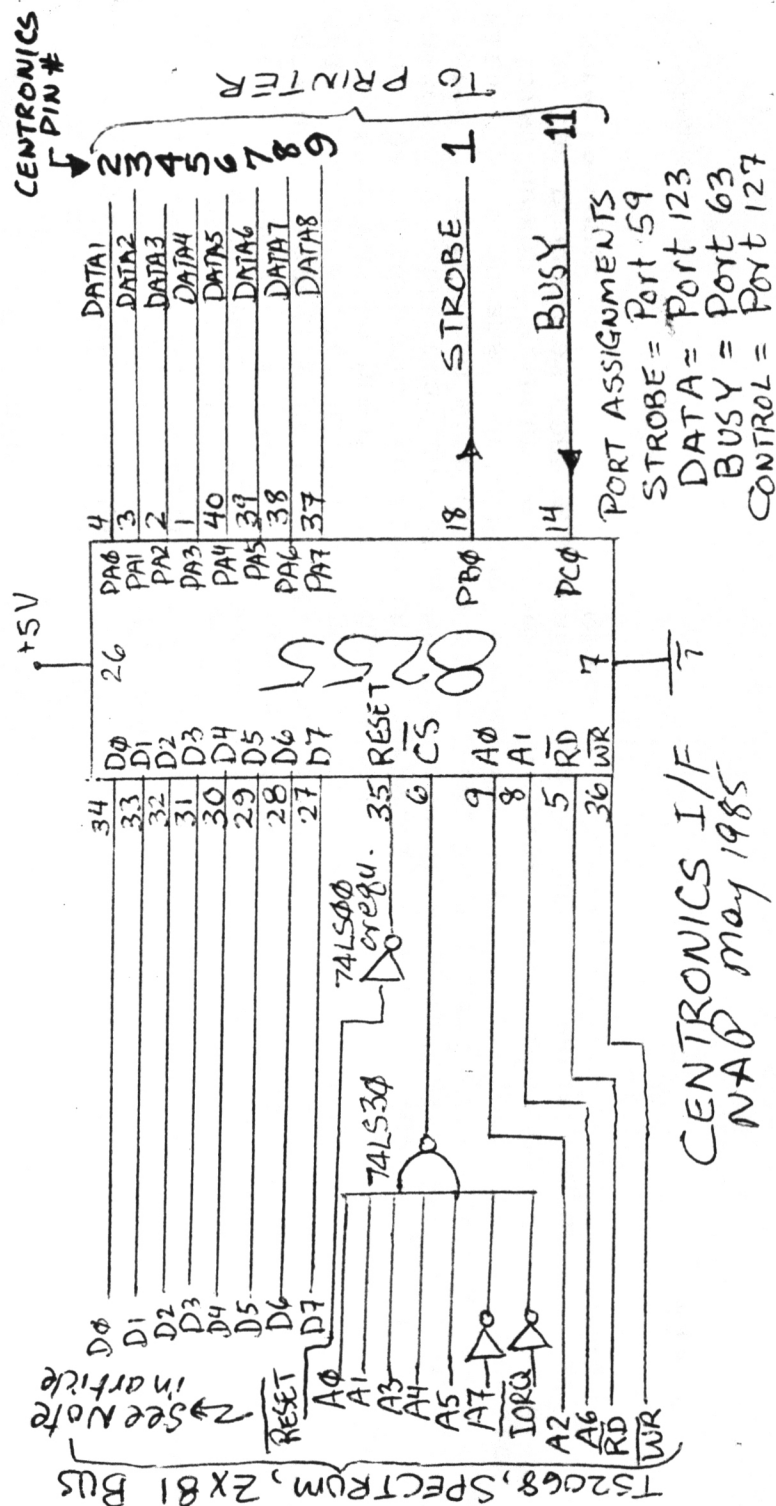
2) Modify Tasword II Basic (Line 700 in my version) so it will SAVE and autorun with LINE 5.

3) Starting from address 57997 to addr. 58022 (inclusive) POKE the following 26 bytes:

243,245,219,63,203,15,56,250,241,211,123,62,0,0,211,59,0,0,0,175,62,255,211,59,251,201

4) RUN Tasword II and SAVE the modified version. You are now in the driver seat with your Centronics IF. In future issues of LIST we will have more on I/O ports.

(A note is in order about the connection of the RESET line to the 8255. On the prototype I connected the 8255 RESET pin through an inverter to the RESET line on the TS2068 bus, as shown in the diagram. Later, to achieve compatibility with the Spectrum bus I took the input of the inverter and grounded it, i.e. the system RESET is not connected any more to the interface. This modification makes the IF compatible with TS2068, Spectrum and ZX81 busses.)



Rony Island Sinclair Timex Group Library Tape No. 4.



LIST

Library tape #4.X

Tape #4.X (probably version 4.6) will be sent out in November. It will be 90 minutes of programs. Over 60 minutes will be brand new material and the remainder will be a reprise of some of the best of tapes #1 & 2. Since some of the #2 material was provided on tape #3.5, most new members will be "caught up" after having received and copied these two. There are some really outstanding items on tape #4. In addition to some fine graphics and home programs, you'll find a very good Pacman, true 64 column text processor, a delightful "Olde English" alphabet, a number of utilities and much much more.

Remember, you should immediately make a tape-to-tape copy of the cassette, as soon as you receive it. Make sure your copy works, then add one of your programs (your own work, from a book or magazine, or something you know to be public domain) to the blank tape. Be careful not to erase the other members programs which may already be on the "member" tape. You should not keep the tape more than 5 business days, before mailing it on to the next member. If you have the time, of course, you can make an "original" copy of most of the programs. Usually this involves GOTO 9998 or a similar command. Check the Listing to be sure.

If you don't know how to make copies, send the tape on and include a note stating your problem.

Remember there is an 'alignment' program on the tape, in this case, at the end of side #1. Play that after LOAD "" CODE, to adjust the head on your spare recorder to the LIST standard. Do NOT change the alignment on your regular tape recorder. If you do you may not be able to load programs previously saved on that machine.

LIST 4.6
Program: GREETING
Bytes: BIG
Bytes: ZF
Bytes: ZF
Program: List
Bytes: List
Program: OLDEGLISH
Bytes: OLDEGLISH
Program: SORT
Program: STRMSCHANS
Program: GRID9X
Program: HEXLOADER
Bytes: C
Program: DFPOKE
Bytes: C
Program: mc-move
Program: TTables
Program: slot mach
Program: spawn
Program: pwr00
Program: renum
Bytes: renum
Program: mc0deutil
Program: ZIC-PAUSE
Bytes: TAPESYS
Program: HB
Program: DOMSDOS
Program: IR3
Program: Bandit1
Program: Bandit2
Bytes: Bandit
Program: PARROT3
Program: BANNER
Bytes: PD
Program: mac
Bytes: mac
Program: moztart
Bytes: -
Program: specinstr
Character array: specinstr
Program: specopy
Program: drawit
Bytes: draw
Program: STAR BLAST
Program: draw

HELP

The listings shown here are only partial. Make sure you do a LOAD "XXXX" first, and then COPY the screen, to see the names of all the programs on the latest version of the tape. Jotting down the counter number while getting the program list is helpful too (albeit a little boring).

HISTORY & BACKGROUND

The LIST library tape was the brainchild of our newsletter editor, P. Donnelly. Over the course of the first few months of LIST's existence, LIST had received a number of programs written by members. The problem of how to communicate these to all the members, especially when more than 1/2 are "corresponding only" types, was quite complicated. Publishing listings in the newsletter was helpful, but still required a lot of duplicate key strokes for the majority of members.

Paul decided to try a unique, and low cost distribution method. He chose five members names (corresponding) and sent them a copy of the first Library tape (Version 1.6) and a blank C-60. To keep the cost to the group, and individuals, down, only one set of tapes was sent out. Each member, upon receipt, was to use the tape, copy what he liked and then mail it on to the next member on the list. The "price" for obtaining this full C-60 of programs was: 1) Cost to mail the two tapes to the next member 2) Each member had to add at least 1 program of his own (not commercial software) to the blank tape.

Library tape 1.6 (and 1.7) was all 2068. Since then number 2.1 was also distributed for the 2068/Spectrum. Also, tape number ZX1, for the 1000 has made the rounds to TS1000 only owners. Each member is allowed to keep the tape one week before mailing it on.

Program: udg-demo
Bytes: udg
Program: TE2068
Program: labels
Program: color2
Program: manager
Program: patienceB
Program: graph plot
Program: beltman
Program: maggot
Bytes: maggot
Program: Big CHR5
Program: Piano
Program: lemonade
Program: 2068 month
Program: graphics
Program: horserace
Program: hanoi
Program: shi s
Program: csstlabel
Program: pac.bas

Program: pac.blast
Bytes: pac2
Bytes: pac2
Bytes: pac2
Bytes: pac2
Bytes: pac2
Program: pac.hack
Program: Golf
Program: SS
Program: smort
Program: banner
Program: solidbaner
Program: Blockman
Program: balloon
Program: Rubic Cube
Bytes: set
Program: HEADERSTR
Program: tape2tape
Program: tape2
Program: MINUETZ
Bytes: MINUETZCODE
Program: MINUETZ
Program: BANNERS
Program: BINPRINT
Bytes: C
Program: BOLD
Bytes: C
Program: CALENDAR
Bytes: CALENDAR

DOCUMENTATION

There is virtually no external documentation for the library program. Many are well documented within the program. Some almost defy understanding, yet still work. If you'd like to add to a program, to make it clearer, please feel free to submit your changes on the blank tape. Do try to make it a "MERGE" program or introductory LOADER program and we'll publish it on a later version. Remember, the lack of documentation serves two purposes, 1) it makes the tape less useful to thieves 2) it encourages you to learn programming techniques and analysis.

LISTing Policy:

Annual Dues.....\$15.00 Issue Price \$1.50 (includes P&P) - Double Issues \$3.00

One "Sample" copy sent upon receipt of large SASE.

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Normal membership year is Feb. through Jan. at cost of \$15.00 (US)
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costs and chances of error down.

If you wish to begin subscribing later in the year, please sign
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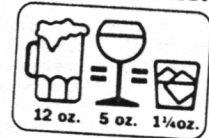
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earn the respect and appreciation by your grateful
peers.

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reading any article in LIST.ing.

Please note our new address - PO BOX 438, Centerport, N.Y. 11721-0438
Mail sent to the old address must be forwarded there and will take
longer to reach us.

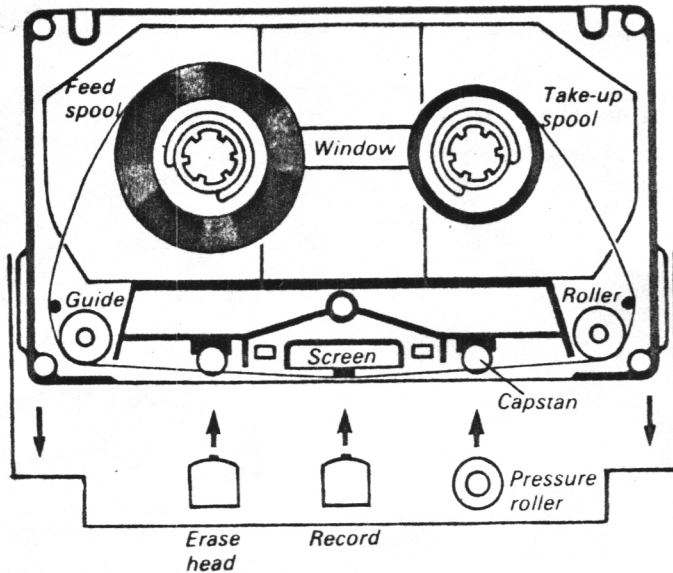
All are equal
in alcohol content.



Beer: 4.5% by volume; Wine: 11% by volume
Liquor: 80 proof or 40% by volume.

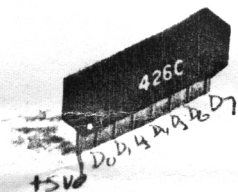
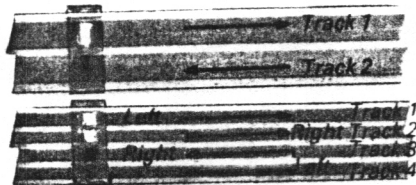


LIST



MONO

STEREO



Do you know what a resistor network looks like?
Here's a sample of the kind that would help you run interrupt driven Spectrum software on your 2068 w/emulator.
One pin goes to +5V, the other 7 to the data lines which don't already have a 10K pull-up resistor.
(D0,D1,D3 thru D7)

QuarTers

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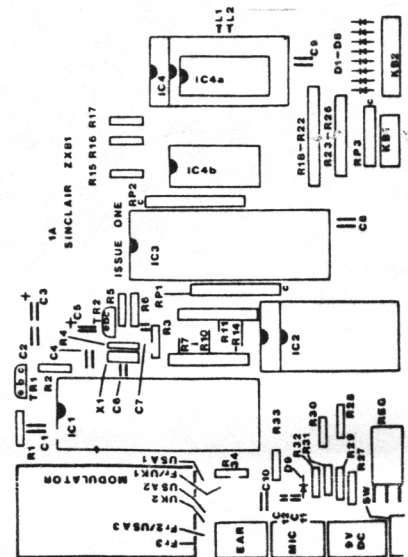
NAME _____
STREET _____
CITY _____
STATE _____ ZIP _____

A SASE would be appreciated.

The Philips Compact Cassette system uses tape 0.15 inch wide, running at a speed of $1\frac{7}{8}$ inches per second. The recorder's capstan passes through a hole in the cassette. When the machine is switched to replay or record, the heads and pressure roller move towards the cassette. The tape is now gripped between the turning capstan and the pressure roller, and so is pulled past the heads. The right-hand spool turns gently to take up the tape. Close contact between the tape and the record/replay head is ensured by the pressure pad. The metal screen shields the head from stray magnetic fields that could otherwise produce hum during playback. The tape can be observed through a window provided in each side of the plastic cassette.

TO LLPRINT LINES THAT ARE "PRINT
" LINES
POKE 26697,80
TO RETURN TO NORMAL
POKE 26697,83

List



ZX81

```

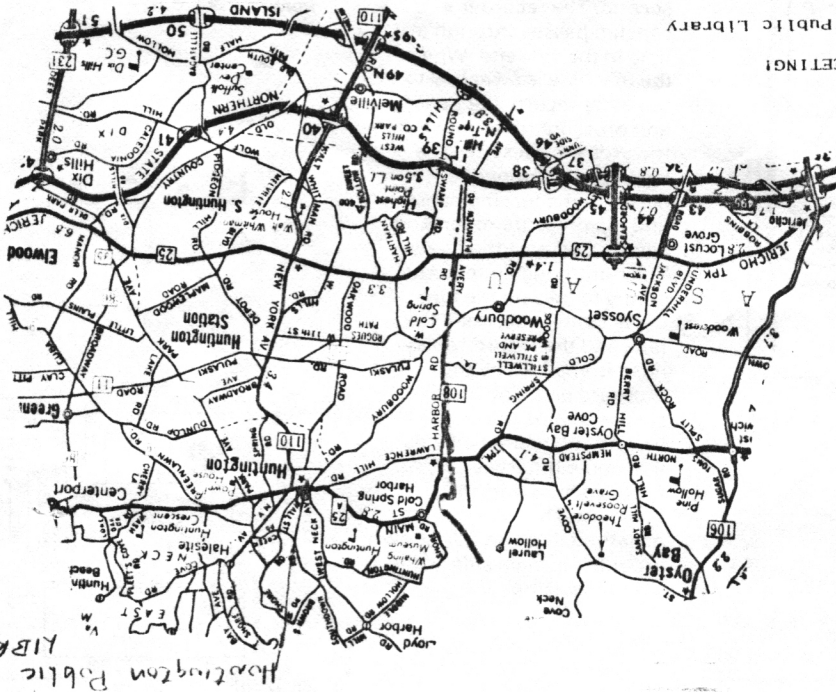
1 REM The method below of using recursive DEF FN to obtain sums was discussed in a TS Survival column in COMPUTER SHOPPER. I don't have the date, unfortunately, but it is fast and handy in some applications.
2 REM added by E.HAMMETT, CHAP EL HILL, N.C.
9 REM The function below calculates the sum of the first n elements of a linear array
10 DEF FN t(a$,n)=VAL (a$+"(n)"+("FN t(a$,n-1)" AND n>1))
11 REM The function below calculates the sum of squares of the first n elements of a linear array
12 DEF FN s(a$,n)=VAL (a$+"(n)"+("s(a$,n-1)" AND n>1))
20 DIM v(10): REM set up an array as an example
30 FOR i=1 TO 10: LET v(i)=2: NEXT i: REM put a value in each cell of the array for the example
40 LET sum=FN t("v",10): REM use the function, passing the array name as a string
50 PRINT: PRINT "sum = ";sum
60 LET sumofsquares=FN s("v",10): REM use the function to obtain squares, passing the array name as a string
70 PRINT "sum of squares = ";sumofsquares
75 PRINT "LIST THE PROGRAM TO STUDY THE "USE OF USER DEFINED FUNCTIONS TO" OBTAIN THESE TOTALS."
80 STOP
90 SAVE "recurfn" LINE 1
    
```

NOVEMBER AND CONTRIBUTED BY

24	25	26	27	28	29	30
17	18	19	20	21	22	23
10	11	12	13	14	15	16
3	4	5	6	7	8	9
1	2					

NOV 1985
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 Huntington, NY
 Nov. 3, 1985



Take L.I.E. or N.S.P. to RT 110 N.
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 Library is on the left.

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